Space Weather Forecast

Issued on Monday, 27 June 2022 at 01:11 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Slight chance of G1 Minor geomagnetic storms on day 1 (27th).

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has remained Low over the past 24 hours, with several small Common-class flares. There are two sunspot regions on the disc, with the largest region now rotating around the northwest limb. The other region is located in the southern hemisphere, approaching centre disc and remains small and simple. However, this has been the source region for the most recent low level C-class flares.

A CME observed earlier on 26th has been assessed as a far-sided event, no new Earth-directed CMEs are apparent on available imagery.

Solar Wind / Geomagnetic Activity: The solar wind speed has been enhanced, increasing above 600 km/s following the arrival of a fast wind from a coronal hole, with peak speeds near 700km/s. The total magnetic field strength was initially moderate, before easing to weak by the end of the period. The north-south component has fluctuated between positive and negative values. Geomagnetic activity was Quiet to Active (Kp 2 to 4).

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) remained at background with no solar radiation storms occurring.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity is likely to be Low to very Low, with only a slight chance of increasing to Moderate with any flares that occur.

Solar Wind / Geomagnetic Activity: The CME from the 24th is expected to miss, passing just ahead, but may give a glancing blow early on day 2 (28th). Solar winds are expected to remain enhanced on day 1 (27th)l due to ongoing coronal hole influences, before gradually easing from day 2 (28th). Geomagnetic activity is likely to be mainly Unsettled with Active intervals and a slight chance of G1/Minor Storms on day 1 (27th). This gradually easing to Quiet with Unsettled spells and a slight chance of Active intervals from day 2 (28th), and likely becoming mostly Quiet by day 4 (30th). Perhaps a temporary increase again to Unsettled to Active with any glancing CME interaction early day 2 (28th), however this is a very low risk.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is forecast to persist at background with no solar radiation storms occurring.

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	20	10	5	1
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	10	5	5	5
Very Active	R3 to R5 X	No	1	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	2	1	1	1
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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